WHAT IS CLAIMED IS:

1. A device for fabricating a liquid crystal display (LCD) panel, comprising:

a base frame;

a lower chamber unit mounted to the base frame, the lower chamber unit having an upper surface;

an upper chamber unit arranged over the lower chamber unit, wherein the upper chamber unit is moveable relative to the base frame and wherein the upper chamber unit has a lower surface;

chamber moving means mounted to the base frame for raising and lowering the upper chamber unit;

an upper stage fixed to the upper chamber unit for securing a first substrate;

a lower stage fixed to the lower chamber unit for securing a second substrate; and

a sealing means provided to at least one of the upper and lower surfaces for sealing an interior space surrounding the first and second substrates, wherein the sealed interior space is definable by joined ones of the upper and lower chamber units.

2. The device as claimed in claim 1, wherein the upper chamber unit includes:

an upper base exposed to an external environment; and

an upper chamber plate attached to the lower surface at a periphery of the upper base.

3. The device as claimed in claim 2, wherein the upper chamber plate is provided as a rectangular rim defining an upper interior space within which the upper stage is fixed.

4. The device as claimed in claim 3, wherein the upper stage is fixed to the upper base.

5. The device as claimed in claim 1, wherein the lower chamber unit includes:

a lower base fixed to the base frame; and

a lower chamber plate arranged above the upper surface at a periphery of the lower base.

6. The device as claimed in claim 5, wherein the lower chamber plate is provided as a rectangular rim defining a lower interior space within which the lower stage is fixed.

7. The device as claimed in claim 5 wherein the lower chamber plate is moveable in lateral directions with respect to the lower base.

8. The device as claimed in claim 5 wherein the lower stage is fixed to the lower base.

9. The device as claimed in claim 5, further comprising a seal member arranged between the lower base and the lower chamber plate for sealing the lower interior space from an external environment.

10. The device as claimed in claim 1, wherein the chamber moving means includes:

a driving motor fixed to the base frame;

a driving shaft coupled to the driving motor;

a connecting part connected to the driving shaft;

a jack part connected to the upper chamber unit; and

a connecting shaft including a first end connected to the jack part and a second end connected to receive a driving force translated by the connecting part.

11. The device as claimed in claim 10, wherein

the driving motor is arranged within an interior bottom portion of the base frame and includes a shaft projected along a substantially horizontal direction;

the driving shaft is connected to the driving motor along the substantially horizontal direction; and

the connecting shaft is coupled to the driving shaft along a substantially vertical direction.

12. The device as claimed in claim 11, wherein the connecting part includes bevel gears for translating a driving force along the substantially horizontal direction to the connecting shaft.

13. The device as claimed in claim 1, wherein the upper stage includes:

a fixing plate fixed to the bottom surface;

a securing plate for securing the first substrate; and

a plurality of fixing blocks arranged between the fixing plate and the securing plate.

14. The device as claimed in claim 13, wherein the securing plate includes an electrostatic chuck for generating an electrostatic charge.

15. The device as claimed in claim 13, wherein the securing plate includes polyimide.

16. The device as claimed in claim 13, further comprising a first low vacuum pump for generating a suction force, wherein the securing plate includes a plurality of vacuum holes for transmitting the suction force.

17. The device as claimed in claim 1, wherein the lower stage includes:

a fixing plate fixed to the upper surface;

a securing plate for securing the second substrate; and

a plurality of fixing blocks arranged between the fixing plate and the securing plate.

18. The device as claimed in claim 17, wherein the securing plate includes an electrostatic chuck for generating an electrostatic charge.

19 The device as claimed in claim 17, wherein the securing plate includes polyimide.

20 The device as claimed in claim 17, further comprising a second low vacuum pump for generating a suction force, wherein the securing plate includes a plurality of vacuum holes for transmitting the suction force.

21. The device as claimed in claim 1, wherein the sealing means includes an O-ring fitted along the upper surface and projecting to a predetermined height above the upper surface.

22. The device as claimed in claim 1, further comprising an upper low vacuum chamber unit arranged over a top surface of the upper chamber unit.

23. The device as claimed in claim 22, wherein the upper low vacuum chamber unit includes a surface proximate the top surface of the upper chamber unit.

24.The device as claimed in claim 1, further comprising a lower low vacuum chamber unit arranged under a bottom surface of the upper chamber unit.

25. The device as claimed in claim 24, wherein the lower low vacuum chamber unit includes a surface proximate the bottom surface of the lower chamber unit.

26. The device as claimed in claim 1, wherein the upper chamber unit further includes alignment means for adjusting an alignment of the first and second substrates.

27. The device as claimed in claim 26, wherein the alignment means includes:

a plurality of cams rotatably arranged to selectively contact and push peripheral portions of the lower chamber unit;

a plurality of restoring means adjacent to the plurality of cams for providing a restoring force in a direction opposite to a direction the plurality of cams push the peripheral portions of the lower chamber unit;

a plurality of moveable shafts each having a first end and a second end; and

a plurality of linear actuators fixed to the upper chamber unit and to the first ends of plurality of moveable shafts for projecting the second ends of the plurality of movable shafts a predetermined distance from the lower surface.

28. The device as claimed in claim 27, wherein the plurality of cams include three cams.

29. The device as claimed in claim 28, wherein

the lower chamber unit includes a first pair of opposing sides and a second pair of opposing sides, wherein a length of the first pair of opposing sides is greater than a length of the second pair of opposing sides;

two cams are arranged proximate one side of the first pair of opposing sides; and

one cam is arranged proximate one side of the second pair of opposing sides.

30. The device as claimed in claim 27, wherein the restoring means includes a plurality of springs, wherein each spring includes a first end connected to the base frame and a second end connected to the peripheral portion of the lower chamber unit.

31. The device as claimed in claim 27, wherein

the upper chamber unit includes four corners; and

the plurality of linear actuators are provided at the four corners of the upper chamber unit.

32. The device as claimed in claim 27, further comprising a plurality of holes formed in upper surface of the lower chamber unit, wherein the second ends of the plurality of movable shafts substantially conform with dimensions of the plurality of holes.

33. The device as claimed in claim 32, wherein the second ends of the plurality of moveable shafts include a conical, tapered structure.

34. The device as claimed in claim 27, wherein each of the plurality of linear actuators includes a load cell.

35. The device as claimed in claim 1, further comprising vacuum pumping means provided to at least one of the upper and lower chamber units for evacuating the sealed interior space.

36. The device as claimed in claim 35, wherein the vacuum pumping means includes one high vacuum pump.

37. The device as claimed in claim 35, wherein the vacuum pumping means includes two low vacuum pumps.

38. The device as claimed in claim 36, further including a vacuum pipeline connected to the high vacuum pump, wherein the vacuum pipeline is connected to and passes through a central portion of the upper chamber unit.

39. The device as claimed in claim 1, further comprising support means projectable through and over the lower stage for seating a substrate.

40. The device as claimed in claim 1, further comprising at least one photosetting means provided to at least one of the chamber units for partially hardening a sealant material arrangeable between the first and second substrates.

41. The device as claimed in claim 40, wherein the photosetting means includes a UV directing part for directing UV light.

42. A method for fabricating a liquid crystal display (LCD) panel using a substrate bonding device having a base frame; a lower chamber unit mounted to the base frame, wherein the lower chamber unit includes an upper surface; an upper chamber unit arranged over the lower chamber unit, wherein the upper chamber unit is moveable relative to the base frame and wherein the upper chamber unit includes a lower surface; chamber moving means mounted to the base frame for raising and lowering the upper chamber unit; an upper stage fixed to the upper chamber unit for securing a first substrate; a lower stage fixed to the lower chamber unit for securing a second substrate; and sealing means provided to at least one of

the upper and lower surfaces for sealing an interior space surrounding the first and second substrates, wherein the sealed interior space is definable joined ones of the upper and lower chamber units, the method comprising:

loading the first and second substrates onto the upper and lower stages, respectively;

lowering the upper chamber unit to seal the interior space from an external environment via the sealing means;

evacuating the sealed interior space;

raising the upper chamber unit and the upper stage to align the first and second substrates;

contacting the first and second substrates with a sealant material;

venting the sealed interior space to apply pressure to the first and second substrates contacted by the sealant material, wherein, after the venting, the first and substrates are bonded together; and

unloading the bonded substrates.

43. The method as claimed in claim 42, further comprising:

prior to the loading, coating the sealant material onto the first substrate; and

prior to the loading, dispensing a liquid crystal material onto the second substrate.

44. The method as claimed in claim 42, further comprising prior to the loading, coating the sealant material and dispensing a liquid crystal material onto the second substrate.

45. The method as claimed in claim 42, wherein the sealant material includes a UV

photosetting sealant.

46. The method as claimed in claim 42, wherein the sealant material includes a thermosetting sealant.

47. The method as claimed in claim 42, wherein the sealant material includes a UV photosetting and thermosetting sealant.

48. The method as claimed in claim 42, wherein the first substrate includes a thin film transistor array substrate.

49. The method as claimed in claim 42, wherein the first substrate includes a color filter array substrate.

50. The method as claimed in claim 42, wherein the second substrate includes a thin film transistor array substrate.

51. The method as claimed in claim 42, wherein the second substrate includes a color filter array substrate.

52. The method as claimed in claim 42, wherein the loading includes securing at least one of the first and second substrates to their respective stages using a suction force and an electrostatic charge.

53. The method as claimed in claim 52, wherein the securing includes generating the suction force before generating the electrostatic charge.

54. The method as claimed in claim 42, wherein the evacuating includes evacuating the sealed interior space to a first pressure and further substantially evacuating the sealed interior space after the sealed interior space has been evacuated to the first pressure.

55. The method as claimed in claim 42, wherein the raising the upper chamber unit and the upper stage includes:

spacing the first and second substrates apart by a first predetermined distance;

aligning at least one set of rough alignment marks; and

aligning at least one set of fine alignment marks after aligning the rough alignment marks, wherein the distance between the first and second substrates is varied during the aligning of the fine alignment marks.

56. The method as claimed in claim 55, wherein a distance between the first and second substrates is less than the first predetermined distance during the aligning of the fine alignment marks.

57. The method as claimed in claim 55, wherein aligning the rough alignment marks includes determining a state of alignment using two cameras arranged at at least two diagonally opposed regions of the first and second substrates.

58. The method as claimed in claim 55, wherein aligning the fine alignment marks includes determining a state of alignment using cameras arranged at four corner regions of the first and second substrates.

59. The method as claimed in claim 55, wherein varying the distance between the first and second substrates includes:

arranging the upper stage such that the first and second substrates do not contact each other; and

lowering the upper stage such that a central portion of the first contacts a central portion of the second substrate,

wherein the fine alignment marks are aligned between the arranging and the lowering of the upper stage.

60. The method as claimed in claim 55, wherein aligning the rough alignment marks includes focusing an alignment camera at an intermediate point between the first and second substrates.

61. The method as claimed in claim 55, wherein aligning the fine alignment marks includes focusing an alignment camera at an intermediate point between the first and second substrates.

62. The method as claimed in claim 55, wherein aligning the rough alignment marks

includes further comprising alternating a focusing of an alignment camera between rough alignment marks formed on the second substrate and on rough alignment marks formed on the first substrate.

63. The method as claimed in claim 55, wherein aligning the fine alignment marks includes further comprising alternating a focusing of an alignment camera between fine alignment marks formed on the second substrate and on fine alignment marks formed on the first substrate.

64. The method as claimed in claim 42, wherein loading the first substrate to the upper stage includes applying a suction force and an electrostatic charge from the upper stage to the first substrate and, after aligning the first and second substrates, the method further comprising:

deactivating the electrostatic charge applied from the upper stage;

raising the upper chamber unit to a predetermined height;

determining an alignment state of the first and second substrates; and

realigning the aligned first and second substrates if it determined based upon the determination of the alignment state.

65. The method as claimed in claim 64, wherein the determining the alignment state includes using at least one set of fine alignment marks.

66. The method as claimed in claim 42, further comprising:

providing a plurality of venting holes within the upper and lower stages; and

providing low vacuum chamber pipelines to the sealed interior space, wherein the venting includes:

in a first venting step, injecting nitrogen gas into the sealed interior space through the plurality of venting holes provided within the upper and lower stages; and

in a second step, injecting nitrogen gas through the low vacuum chamber pipelines increase the pressure inside the sealed interior space equal to an atmospheric pressure.

67. The method as claimed in claim 42, further comprising directing UV light to the sealant material for partially hardening the sealant material.

68. The method as claimed in claim 67, wherein the UV light is directed to at least 10 regions of the sealant material.

69. The method as claimed in claim 67, further comprising directing the UV light prior to the venting.

70. The method as claimed in claim 67, further comprising directing the UV light after the venting.

71. The method as claimed in claim 42, wherein the unloading includes:

securing the bonded substrates to the upper stage;

raising the upper stage to which the bonded substrates are secured;

arranging a loader proximate the bonded substrates, secured to the upper stage;

releasing the bonded substrates from the upper stage, wherein the released bonded substrates are supported by the loader; and

removing the loader supporting the bonded substrates from the substrate bonding machine.

72. The method as claimed in claim 42, wherein the unloading includes:

securing the bonded substrates to the upper stage;

raising the upper stage to which the bonded substrates are secured;

raising a lift pin through the lower stage and over the upper surface, wherein the raised lift pin is proximate the secured bonded substrates;

releasing the bonded substrates from the upper stage, wherein the released bonded substrates are supported by the raised lift pin; and

arranging a loader proximate the bonded substrates supported by the raised lift pin;

lowering the raised lift pin such that the bonded substrates are supported by the loader; and

removing the loader supporting the bonded substrates from the substrate bonding machine.

73. The method as claimed in claim 42, wherein the unloading includes:

raising the bonded substrates above the upper surface, wherein the raised bonded substrates are supported by a raised lift pin arranged through the lower stage and over the upper surface;

arranging a loader proximate the raised bonded substrates supported by the lift pin;

lowering the raised lift pin such that the bonded substrates are supported by the loader; and

removing the loader supporting the bonded substrates from the substrate bonding machine.

74. The method as claimed in claim 73, further comprising loading an unbonded substrate onto the upper stage prior to removing the loader supporting the bonded substrates from the substrate bonding machine.